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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,720	12/13/2006	Kiminobu Hirata	050203-0149	4387

31824 7590 04/13/2009  
MCDERMOTT WILL & EMERY LLP  
18191 VON KARMAN AVE.  
SUITE 500  
IRVINE, CA 92612-7108

EXAMINER
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TRAN, BINH Q

ART UNIT	PAPER NUMBER
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3748

MAIL DATE	DELIVERY MODE
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04/13/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,720	<b>Applicant(s)</b> HIRATA ET AL.	
	<b>Examiner</b> BINH Q. TRAN	<b>Art Unit</b> 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

This office action is in response to the amendments filed January 12, 2009.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claims 1-4, 7-11, and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al. (Murphy) (Patent Number 6,487,852) in view of Inoue (Patent Number 4,854,123).***

Regarding claims 1, and 19-20, Murphy discloses engine control apparatus and method (e.g. 10) configured to be in cooperation with an engine (14), the engine including an addition device (e.g. 16) for adding a NO<sub>x</sub> reducing agent to exhaust gas of the engine, the engine control apparatus comprising: a control unit (e.g. 26) for controlling the engine, wherein the control unit is configured to detect an abnormality occurrence in the addition device, and to restrict an output torque of the engine (e.g. Speed, Load, RPM, Mass Air Flow (MAF)) in response to detecting the abnormality occurrence in the addition device (16) (e.g. See col. 4, lines 1-67; col. 5, lines 1-48). However, Murphy fails to disclose wherein the control unit is configured to restrict an

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output torque of the engine so that a vehicle speed is restricted at or smaller than a predetermined value.

Inoue discloses engine control apparatus and method configured to be in cooperation with an engine (1), the engine including an addition device (e.g. 13) for adding a NO<sub>x</sub> reducing agent to exhaust gas of the engine, the engine control apparatus comprising: a control unit (e.g. 5) for controlling the engine, wherein the control unit is configured to restrict an output torque of the engine so that a vehicle speed is restricted at or smaller than a predetermined value (e.g. See Steps 1-6; col. 4, lines 60-67; col. 5, lines 1-25), when the amount of ammonia leaking into the atmosphere (Table 1).

It would have been recognized by one of ordinary skill in the art at the time the invention was made, that applying the known technique of using a control unit to restrict an output torque of the engine so that a vehicle speed is restricted at or smaller than a predetermined value as taught by Inoue to the exhaust purifying system of Murphy, would have yielded predictable results and resulted in an improved system for controlling the engine operating conditions more accurate, so as to reduce amount of ammonia leaking into the exhaust system, when an abnormality occurrence in the addition device, to further improve the performance of the engine and the efficiency of the emission system. In addition, the Murphy and Inoue references are known work in one of field of endeavor, and such modification is merely the use of known technique to improve a similar device by using a control unit to restrict an output torque of the engine so that a vehicle speed is restricted at or smaller than a predetermined value, and such modification, i.e. choosing from a finite number of predictable solutions, is not of innovation but

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of ordinary skill and common sense. (See “KSR Int’l Co. v. Teleflex Inc., 82 USPQ2d 1385 (U.S. 2007)”).

Regarding claim 2, Murphy further discloses wherein at the time of the abnormality occurrence, the control unit varies an output characteristic of the engine relative to an accelerator operation by a driver from that at a normal time other than the time of the abnormality occurrence (e.g. See col. 3, lines 36-67; col. 5, lines 3-48).

Regarding claim 3, Murphy further discloses wherein the control unit changes a fuel supply quantity to the engine at the time of the abnormality occurrence from that at the normal time, under the same accelerator operating amount, to vary the output characteristic of the engine (e.g. See col. 3, lines 36-67; col. 5, lines 3-48).

Regarding claim 4, Murphy further discloses wherein, on the basis of the same accelerator operating amount, the control unit decreases the fuel supply quantity at the time of the abnormality occurrence than that at the normal time (e.g. See col. 3, lines 36-67; col. 5, lines 3-48).

Regarding claim 7, Murphy further discloses wherein the engine is mounted on a vehicle, and wherein the control unit detects a vehicle speed, and varies the fuel supply quantity only when the detected vehicle speed is larger than a predetermined value (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 8, Murphy further discloses wherein the control unit inhibits restarting of the engine operation after the engine operation stops, to restrict the output of the engine (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

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Regarding claim 9, Murphy further discloses wherein the control unit breaks the connection between a starter for cranking the engine, and a power supply unit for the starter, to thereby inhibit the restarting of the engine operation (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 10, Murphy further discloses wherein the control unit inhibits the fuel supply to the engine, to thereby inhibit the restarting of the engine operation (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 11, Murphy further discloses wherein the control unit stops the engine operation after a predetermined period of time has elapsed from detection of the abnormality occurrence (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 15, Murphy further discloses wherein the NO<sub>x</sub> reducing agent is ammonia (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 16, Murphy further discloses wherein the addition device adds urea as a precursor of ammonia to the exhaust gas, to thereby add the NO<sub>x</sub> reducing agent (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 17, Murphy further discloses wherein at the time of the abnormality occurrence, the control unit operates a warning device for notifying a driver of the abnormality occurrence (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 18, Murphy further discloses a first control unit for controlling the engine, and a second control unit for controlling the addition device, wherein the second control unit controls the addition device at both of the time of the abnormality occurrence, and a normal time other than the time of the abnormality occurrence, and the second control unit, at the normal

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time, operates the addition device to add the NOx reducing agent by an amount according to engine operating conditions, while at the time of the abnormality occurrence, stops the adding of the NOx reducing agent by the addition device (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

***Claims 1-4, 7-12, and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Nieuwstadt et al. (Van Nieuwstadt) (Patent Number 6,546,720) in view of Inoue (Patent Number 4,854,123).***

Regarding claims 1, and 19-20, Van Nieuwstadt discloses engine control apparatus and method (e.g. 10) configured to be in cooperation with an engine (14), the engine including an addition device (e.g. 16) for adding a NOx reducing agent to exhaust gas of the engine, the engine control apparatus comprising: a control unit (e.g. 12) for controlling the engine, wherein the control unit is configured to detect an abnormality occurrence in the addition device, and to restrict an output torque of the engine (**e.g. Speed, Load, RPM, Mass Air Flow (MAF)**) in response to detecting the abnormality occurrence in the addition device (16) (e.g. See col. 9, lines 1-67; col. 10, lines 1-31). However, Van Nieuwstadt fails to disclose wherein the control unit is configured to restrict an output torque of the engine so that a vehicle speed is restricted at or smaller than a predetermined value.

Inoue discloses engine control apparatus and method configured to be in cooperation with an engine (1), the engine including an addition device (e.g. 13) for adding a NOx reducing agent to exhaust gas of the engine, the engine control apparatus comprising: a control unit (e.g. 5) for controlling the engine, wherein the control unit is configured to restrict an output torque of the engine so that a vehicle speed is restricted at or smaller than a predetermined value (e.g. See

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Steps 1-6; col. 4, lines 60-67; col. 5, lines 1-25), when the amount of ammonia leaking into the atmosphere (Table 1).

It would have been recognized by one of ordinary skill in the art at the time the invention was made, that applying the known technique of using a control unit to restrict an output torque of the engine so that a vehicle speed is restricted at or smaller than a predetermined value, as taught by Inoue to the exhaust purifying system of Van Nieuwstadt, would have yielded predictable results and resulted in an improved system for controlling the engine operating conditions more accurate, so as to reduce amount of ammonia leaking into the exhaust system, when an abnormality occurrence in the addition device, to further improve the performance of the engine and the efficiency of the emission system. In addition, the Van Nieuwstadt and Inoue references are known work in one of field of endeavor, and such modification is merely the use of known technique to improve a similar device by using a control unit to restrict an output torque of the engine so that a vehicle speed is restricted at or smaller than a predetermined value, and such modification, i.e. choosing from a finite number of predictable solutions, is not of innovation but of ordinary skill and common sense. (See “KSR Int’l Co. v. Teleflex Inc., 82 USPQ2d 1385 (U.S. 2007)”).

Regarding claim 2, Van Nieuwstadt further discloses wherein at the time of the abnormality occurrence, the control unit varies an output characteristic of the engine relative to an accelerator operation by a driver from that at a normal time other than the time of the abnormality occurrence (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 3, Van Nieuwstadt further discloses wherein the control unit changes a fuel supply quantity to the engine at the time of the abnormality occurrence from that at the



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normal time, under the same accelerator operating amount, to vary the output characteristic of the engine (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 4, Van Nieuwstadt further discloses wherein, on the basis of the same accelerator operating amount, the control unit decreases the fuel supply quantity at the time of the abnormality occurrence than that at the normal time (e.g. See col. 3, lines 36-67; col. 5, lines 3-48).

Regarding claim 7, Van Nieuwstadt further discloses wherein the engine is mounted on a vehicle, and wherein the control unit detects a vehicle speed, and varies the fuel supply quantity only when the detected vehicle speed is larger than a predetermined value (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 8, Van Nieuwstadt further discloses wherein the control unit inhibits restarting of the engine operation after the engine operation stops, to restrict the output of the engine (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 9, Van Nieuwstadt further discloses wherein the control unit breaks the connection between a starter for cranking the engine, and a power supply unit for the starter, to thereby inhibit the restarting of the engine operation (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 10, Van Nieuwstadt further discloses wherein the control unit inhibits the fuel supply to the engine, to thereby inhibit the restarting of the engine operation (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 11, Van Nieuwstadt further discloses wherein the control unit stops the engine operation after a predetermined period of time has elapsed from detection of the abnormality occurrence (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 12, Van Nieuwstadt further discloses wherein the engine comprises a tank for storing an aqueous solution of the NOx reducing agent or an precursor thereof, which is added to the exhaust gas by the addition device, and wherein the control unit comprises a first sensor (26) for detecting a concentration of the NOx reducing agent or the precursor contained in the aqueous solution stored in the tank, and when a value of the concentration detected by the first sensor is out of a predetermined range, detects the abnormality occurred in the addition device (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 14, Van Nieuwstadt further discloses wherein the engine comprises a tank for storing an aqueous solution of the NOx reducing agent or a precursor thereof, which is added to the exhaust gas by the addition device, and wherein the control unit comprises a second sensor for detecting a residual quantity of the aqueous solution stored in the tank, and when a value of the residual quantity detected by the second sensor is smaller than a predetermined value, detects the abnormality occurred in the addition device (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 15, Van Nieuwstadt further discloses wherein the NOx reducing agent is ammonia (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 16, Van Nieuwstadt further discloses wherein the addition device adds urea as a precursor of ammonia to the exhaust gas, to thereby add the NOx reducing agent (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

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Regarding claim 17, Van Nieuwstadt further discloses wherein at the time of the abnormality occurrence, the control unit operates a warning device for notifying a driver of the abnormality occurrence (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 18, Van Nieuwstadt further discloses a first control unit for controlling the engine, and a second control unit for controlling the addition device, wherein the second control unit controls the addition device at both of the time of the abnormality occurrence, and a normal time other than the time of the abnormality occurrence, and the second control unit, at the normal time, operates the addition device to add the NOx reducing agent by an amount according to engine operating conditions, while at the time of the abnormality occurrence, stops the adding of the NOx reducing agent by the addition device (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

***Allowable Subject Matter***

Claims 5-6 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Since allowable subject matter has been indicated, applicant is encouraged to submit **Final Formal Drawings (If Needed)** in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

***Response to Arguments***

Applicant's arguments filed January 12, 2009 have been fully considered but they are not completely persuasive. Claims 1-20 are pending.

Applicant's cooperation in explaining the claims subject matter more specific to overcome the claim rejection is appreciated.

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection as discussed above.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/BINH Q. TRAN/  
Binh Q. Tran  
Primary Examiner, Art Unit 3748  
April 11, 2009